



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/815,346	03/31/2004	Scott Sibbett	INTEL1540 (P18529)	8293
28213	7590	05/05/2006	EXAMINER	
DLA PIPER RUDNICK GRAY CARY US, LLP			FICK, ANTHONY D	
4365 EXECUTIVE DRIVE			ART UNIT	
SUITE 1100			PAPER NUMBER	
SAN DIEGO, CA 92121-2133			1753	

DATE MAILED: 05/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/815,346

Applicant(s)

SIBBETT ET AL.

Examiner

Anthony Fick

Art Unit

1753

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 March 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) 7-9 and 21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 10-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-21 are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 March 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 7/28/05
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Election/Restrictions*

1. Applicant's election of group I, claims 1 through 6 and 10 through 20 in the reply filed on March 27 2006 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).
2. Claims 7 through 9 and 21 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on March 27 2006.

### *Drawings*

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference characters "213" and "214" have both been used to designate the same part within figures 4, 5, and 6. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Specification***

4. The abstract of the disclosure is objected to because in lines 3 and 4, the abstract reads "A first electrodes" instead of the singular electrode. Correction is required. See MPEP § 608.01(b).

5. The disclosure is objected to because of the following informalities: in paragraph 0023, the reference number 213 is given for the reservoir ends within figure 5, however there is no reference 213 within figure 5. Also in paragraph 0024, the reservoirs for the upper channel are given reference number 215 in line 6 instead of 213, the upper channel is given reference number 228 in line 2 and 204 in any other line in the paragraph, and the lower channel is given reference number 230 in line 2 and 208 in any other line in the paragraph. Figure 6 does not contain a reference number 204 or 208 as well.

Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1, 2, 5, 6, 10, 11, 14 through 17 and 20 are rejected under 35 U.S.C. 102(e) as being anticipated by Jacobson et al. (U.S. 6,685,809).

Jacobson discloses a microfluidic device as shown in figures 1, 1A and 1B. The device comprises a body having a first fluid passage, 20A and 20B or analysis channel, a second fluid passage, 25A and 25B or side channel, a first electrode positioned in the first fluid passage, either 40 or 50, and a second electrode positioned in the second fluid passage, either 55 or 60. Figure 1A further shows a membrane, 65, positioned separating the first fluid passage from the second and in communication with both passages. Thus claim 1 is met. The electrodes in figure 1B are placed within the reservoirs of figure 1 (column 5, paragraph 7) thus each passage contains at least one reservoir with the electrode positioned in the reservoir as in claims 5 and 6. Jacobson further discloses making the body out of PDMS (column 11, paragraph 2) as in claim 2 and the use of polyacrylamide gel for the membrane (column 10, paragraph 2).

Jacobson also shows a cover plate, 15, in figure 1B covering the channel and the membrane. The channel in figure 1B separates two first reservoirs, 40 and 50, and a first electrode positioned in the channel, within the reservoirs. The device also contains a membrane, 65, in communication with the channel and a second reservoir, 55, through the blank in fluidic contact with the membrane. The second reservoir is in communication with the channel via the membrane and has a second electrode positioned within the reservoir. Thus claim 10 is met. As stated above, Jacobson discloses making the body out of PDMS (column 10, paragraph 2) as in claim 11.

The disclosure of Jacobson also applies to claim 14 as figure 1B shows two electrodes within the channel, one being within the reservoir. The two electrodes can maintain a voltage in the channel as shown by the power supply in figure 1B. Thus

Art Unit: 1753

claim 14 is also met. Further the electrode on the right of figure 1B is proximate the membrane as shown in the figure, as in claim 15. Since the electrodes are connected to a power supply, the electrodes are enabled to apply a voltage gradient to a solution disposed in the channel (column 6, paragraph 1) to cause migration of charged particles as in claim 16. Once again Jacobson discloses use of PDMS (column 10, paragraph 2) as in claim 17. Also, the membrane disclosed by Jacobson, the polyacrylamide gel (column 10, paragraph 2) is a sieving media as in claim 20.

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 3, 12 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jacobson as applied to claims 1, 2, 5, 6, 10, 11, 14 through 17 and 20 above, and further in view of Ruiz-Martinez et al. (U.S. 6,554,985).

The disclosure of Jacobson is as stated above for claims 1, 2, 5, 6, 10, 11, 14 through 17 and 20.

The difference between Jacobson and claims 3, 12 and 18 is the requirement of an agarose gel membrane.

Ruiz-Martinez teaches a method for separation of biological molecules. The separation medium is a sieving matrix of polyacrylamide, polymer solutions, or agarose (column 1, paragraph 3).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the agarose of Ruiz-Martinez as the membrane of the device of Jacobson because agarose and polyacrylamide are functional equivalents for use as sieving medium (Ruiz-Martinez column 1, paragraph 3). Because Jacobson and Ruiz-Martinez are both concerned with material manipulations, one would have a reasonable expectation of success from the combination. Thus the combination meets claims 3, 12 and 18.

10. Claims 4, 13 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jacobson as applied to claims 1, 2, 5, 6, 10, 11, 14 through 17 and 20 above, and further in view of Olivares et al. (U.S. 6,942,773).

The disclosure of Jacobson is as stated above for claims 1, 2, 5, 6, 10, 11, 14 through 17 and 20.

The difference between Jacobson and claims 4, 13, and 19 is the requirement of a membrane made of cellulose.

Olivares teaches a separation device to detect particles. The separation channel utilizes a sieving medium such as polyethylene glycol, polyacrylamide, hydroxyl propyl methyl cellulose or hydroxyethylcellulose (column 2, paragraph 7).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the cellulose of Olivares as the membrane of the device of Jacobson because cellulose and polyacrylamide are functional equivalents for use as sieving medium (Olivares column 2, paragraph 7). Because Olivares and Jacobson are

Art Unit: 1753


both concerned with material manipulations, one would have a reasonable expectation of success from the combination. Thus the combination meets claims 4, 13 and 19.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony Fick whose telephone number is (571) 272-6393. The examiner can normally be reached on Monday thru Friday 8 AM to 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Anthony Fick *ADF*  
AU 1753  
May 1, 2006

  
**ALAN DIAMOND**  
**PRIMARY EXAMINER**  
Tech Center 1700